
Coordinated Dialing Plan

The Coordinated Dialing Plan (CDP) allows a customer with a number of local switches to coordinate the dialing plan of the stations at these switches. A telephone user can call any other telephone within the CDP group of switches by dialing a unique three- to seven-digit number assigned to the telephone.

If the switch is equipped with the DNXP package, the number assigned to each telephone can have up to ten digits.

A CDP can be arranged to provide a centralized public exchange network capability which channels access to and from the public network through a single switch within the CDP group.

The CDP software provides the translation and digit manipulation capability that is necessary to implement the Coordinated Dialing Plan. Calls dialed within the CDP format can be terminated locally after digit translation and digit deletion. Or, calls can be routed to a remote switch in the CDP group following digit translation, route selection, and digit deletion and/or insertion. Figure 7 illustrates how a Coordinated Dialing Plan might be implemented at two customer locations.

Note: The maximum number of leading digits to be deleted from a Local Steering Code (LSC) is four. However, if the DNXP package is equipped, this number is increased to seven digits.

X11 Release 20 introduces Flexible Numbering Plan (FNP package 160) to the Global marketplace. FNP interacts with both CDP and Network Alternate Route Selection (NARS) to introduce new capabilities. For information regarding FNP refer to the *Flexible Numbering Plan* chapter in this document, and *Flexible Numbering Plan Description, operation, and administration* (553-2751-105).

The following table (Table 16) lists the minimum and maximum parameter settings for the various networking elements.

Table 16
Networking feature parameters

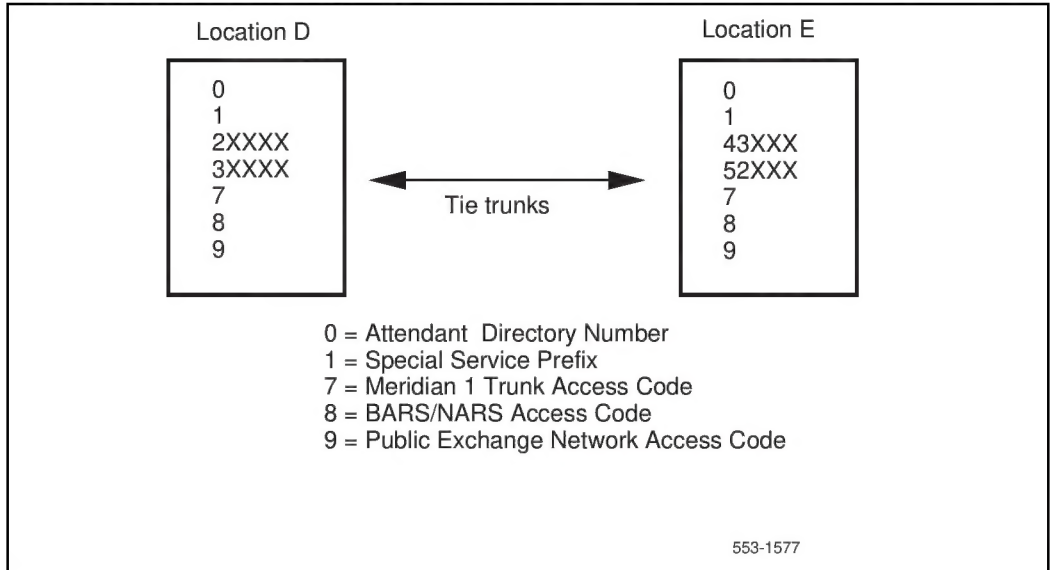
Parameter	Features equipped at switch		
	CDP	BARS	NARS
NCOS groups	0–99 (0–3)	0–99 (0–7)	0–99 (0–15)
Facility Restriction Levels	0–7	0–7	0–7
Digit manipulation tables	1–31	1–255	1–255 [1–999]
Route list blocks	0–32	0–127	0–255 [0–999]
Route list block entries	0–6 (0–2)	0–63 {0–31} (0–7)	0–63 {0–31} (0–7)
FCAS tables		1–127	1–255
FSNS tables			[1–255]
SDR blocks			
X11 release 5 and later		256	512
X11 release 4 and earlier		32	256
Legend: NCOS = Network Class of Service FCAS = Free Calling Area Screening FSNS = Free Special Number Screening SDR = Supplemental Digit Restriction Values in parenthesis () are for releases prior to X11 release 13. Values in braces {} are for releases prior to X11 release 15. Values in brackets [] apply if the Flexible Numbering Plan (FNP) package (160) is equipped.			

Note 1: If the New Flexible Code Restriction (NFCR) feature (see *X11 Features and Services*) is equipped in conjunction with either BARS and/or CDP, the number of available NCOS groups is 8.

Note 2: If the Coordinated Dialing Plan (CDP), Basic Alternate Route Selection (BARS), and Network Alternate Route Selection (NARS) features are equipped in the same switch but for different customers, the highest parameter values apply to that switch; for example, if one

customer has CDP, another customer has NARS and another customer has BARS, the NARS parameters apply to the all customers.

Figure 7
Example of a Coordinated Dialing Plan



Steering codes

Referring to Figure 7, users at Location D can call stations at Location E by dialing 43XXX or 52XXX. Similarly, users at Location E can call stations at Location D by dialing 2XXXX or 3XXXX. If a user at Location D dials 43XXX or 52XXX to reach a telephone at Location E, Location D uses the digits “43” or “52” as a DSC (Distant Steering Code) to select the trunk group to Location E. Similarly, if a user at Location E dials 2XXXX or 3XXXX to reach a telephone at Location D, Location E uses the digit “2” or “3” as a DSC.

The same format is used for calling local stations; for example, users at Location E dial 43XXX or 52XXX to reach local stations at Location E. In this case, the system interprets the digits “43” or “52” as a Local Steering Code (LSC) and deletes them from the dialed number in order to terminate the call locally.

Note: Where possible, four-digit extension numbers should be maintained as CDP DNs. As long as the first digit or digits of these extension numbers are unique at each location all or part of the extension number may be used as a steering code. There cannot be duplicate extension numbers at two locations on a CDP network.

If the switch at Location E is arranged to provide centralized access to the public exchange network, digit “9” at Location E is considered a Trunk Steering Code (TSC) for public exchange access. At Location D, digit “9” is a Trunk Steering Code which invokes digit manipulation to insert the required digits to route the call through Location E to the public exchange network. Similarly, users at Location D can call the attendant at Location E by simply dialing “0”, if Location D does not assign digit “0” as the local attendant access code.

Steering codes can be composed of one, two, three, or four digits. If the DNXp package is equipped, the steering codes can have up to seven digits.

At each switch in the CDP group, the steering codes must be distinct (for example, the initial digits must be unique) from any assigned access codes. As Figure 7 shows, “0” is reserved as the attendant access code; “1” is reserved as the Special Service Prefix (SPRE); “7” is reserved as a trunk access code; “8” is reserved as a NARS access code; and “9” is reserved as the public exchange network access code. This means there are five digits remaining that can be used as the leading digits of steering codes (for example, “2,” “3,” “4,” “5,” and “6”). The CDP feature supports up to 32,000 steering codes if the Flexible Numbering Plan (FNP) package (160) is equipped, or 10,000 steering codes if FNP is not equipped.

Note: Prior to X11 Release 13, the CDP feature supports up to 5000 steering codes.

A CDP DN consists of an internal DN prefixed with the appropriate steering code. A typical CDP configuration is shown in [Figure 7](#).

Associated documents

For more information regarding the CDP feature refer to *Coordinated Dialing Plan description* (553-2751-102).

Conventional switch access

If a conventional (CONV) switch, any type without the CDP software, is integrated as part of a CDP group (see Figure 8), the steering codes defined at a CDP switch to access the conventional switch may be repeated or absorbed (for example, deleted) by the CDP switch. The steering codes are repeated if the conventional switch is identified by more than one steering code; they are absorbed if all the numbers at the conventional switch begin with the same steering code.

Calls to a CDP switch from the conventional switch are made by dialing the desired CDP DN (for example, telephone C at the CONV switch dials 67000 to reach telephone B at switch CDP2). The CONV switch uses digit “6” as a trunk access code for the tie trunk route to switch CDP2. After tie trunk seizure, the CONV switch outpulses the remaining digits (7000) to CDP2. At CDP2, digit “6” is inserted on the incoming tie trunk from the CONV switch, and the call is completed to telephone B.

Local calls at the CONV switch are made by dialing only the internal DN (for example, 3500), rather than the CDP DN (for example, 53500), unless the CONV switch can be arranged to absorb digit “5”, or employs a five-digit numbering plan.

As shown in Figure 8, switch CDP2 is arranged to provide centralized access to the public exchange network. For users at the CONV switch to access this capability, a separate tie trunk route must be provided to switch CDP2. This is because switch CDP2 is arranged to insert digit “6” on the incoming tie trunk route from the CONV switch used for CDP calls. For public exchange network calls, digit “9” must be inserted on the incoming tie trunk route from the CONV switch. Similarly, if users at the CONV switch are to be allowed access to the ESN capabilities (for example, NARS) at switch CDP2, another tie trunk route must be provided for this purpose.

A second alternative exists where one tie trunk route connects the conventional switch to the CDP equipped switch. Users dial an access code to this tie trunk group, then dial the necessary CDP digits to reach other switches, or the necessary BARS/NARS digits for network calls through the node. The tie trunk route at the CDP switch is not programmed to insert digits in this example.

CDP routing

Up to 128 route lists can be defined at a switch equipped with the CDP feature software. If CDP is equipped at an ESN node and the Flexible Numbering Plan (FNP) package (160) is equipped 1000 route lists can be defined. If CDP is equipped at an ESN node and the Flexible Numbering Plan (FNP) package (160) is not equipped 256 route lists can be defined. A route list is used to define the alternate route choices for CDP calls to a particular destination.

Route choices in a route list are called route list entries. There can be up to seven (0–6) route list entries associated with each route list. If a switch is equipped with the NARS software in addition to the CDP feature software, NARS route lists, a maximum of 1000 if the FNP package is also equipped, or 256 if the FNP package is not equipped, can be shared by both NARS and CDP calls.

Note: Prior to X11 Release 13, up to 32 route lists (0–31) can be defined at a switch equipped with the CDP feature software. Also, there can be up to three (0–2) route list entries associated with each route list.

Route lists are associated with each “Distant Steering Code” and “Trunk Steering Code” that can be dialed at a CDP switch. Each code is defined in the CDP software, together with the route list number that must be accessed for call completion to the destination indicated by the steering code. The entries in the specified route list are then searched sequentially for an available and eligible trunk route. Local Steering Codes are not associated with route lists.

CDP digit manipulation

Route list entries can be associated with digit manipulation tables. There can be 32 (0–31) digit manipulation tables defined at a CDP switch. If CDP is equipped at an ESN node 1000 (0–999) tables can be defined if the FNP package is equipped, or 256 (0–255) tables can be defined if the FNP package is not equipped. Digit manipulation table “0” is used as an indication that no digit manipulation is required.

Each digit manipulation table (except “0”) can be defined to delete a number (0 to 15) of leading digits of a dialed CDP number and to insert up to 24 different leading digits, including the asterisk (*) to indicate a dialing pause, where required.

CDP Time-of-Day schedules

Two (0–1) TOD schedules can be defined at a CDP switch. If CDP is equipped at an ESN node, eight (0–7) TOD schedules can be defined. Each route list entry is associated with a TOD schedule. When a route list entry is selected for a CDP call, the CDP software compares the current time-of-day with the TOD schedule assigned to the route list entry.

If the current time-of-day is within the interval defined by the TOD schedule, the route list entry is used for the call. If the current time-of-day is not within the interval defined by the TOD schedule or, if the TOD schedule is turned “OFF” (in software), the route list entry is not eligible for the call. TOD schedules can be selectively turned “ON” or turned “OFF” by the customer through service change.

Queuing

Queuing against local stations is provided by the standard Ring Again (RGA) feature. For calls directed to a remote CDP switch, Ring Again can be applied if all local outgoing trunk routes to the remote CDP switch are busy or blocked. Ring Again cannot be applied against busy or blocked stations/trunks at the remote CDP switch. Blocking tone is not provided until the full CDP number (or trunk steering code) is dialed.

Federal Communication Commission Equal Access Carrier Access Code Expansion impact

In May 1991, the Federal Communications Commission (FCC) mandated that Call Aggregators (CA) allow customers *Equal Access* to interexchange carriers. This capability is available with X11 release 17 and later. This allows callers to use interexchange carriers regardless of the CA’s prescribed carrier. As a concession to CA’s the FCC has allowed the optional restriction of direct dialed Equal Access toll calls.

Any call preceded by a Carrier Access Code (CAC) is considered to be an Equal Access call. The CAC consists of an Equal Access identifier and a Carrier Identification Code (CIC) which identifies the desired interexchange carrier for a given call. The FCC Equal Access CAC Expansion allows the Equal Access identifier to be expanded from two to three digits, and the CIC to be expanded from three to four digits. Table 17 gives examples of both the original and expanded CAC formats:

Table 17
Original and expanded CAC formats

CAC formats	Equal Access Identifier	Carrier Identification Code
Original	10	XXX
Expanded	101	XXXX

The expanded format is effective as of the first quarter 1995, both formats, original and expanded, will be allowed to coexist for approximately 18 months at which time the original format will be discontinued (fourth quarter 1996).

Along with the introduction of the expanded CAC the FCC Equal Access CAC Expansion feature also eliminates the Selective Carrier Restriction method capabilities, while retaining the General Carrier Restriction capabilities. This results in a single restriction method which will be referred to as Equal Access toll call restriction.

Dialing Plan considerations

To assist Network Dial Plan Administrators in planning for the CAC expansion the following tables show the formats supported and the time frames in which they are supported:

Table 18
CAC formats supported until December 31, 1994

Operator-assisted dialing to North American and International locations: 10CIC + 0 10CIC + 0 + NPA + NXX + XXXX 10CIC + 0 + NXX + XXXX 10CIC + 0 + SAC + NXX + XXXX 10CIC + 01 + CC + NN
Direct Distance Dial (DDD) dialing to North American and International locations: 10CIC + 1 + NPA + NXX + XXXX 10CIC + 1 + NXX + XXXX 10CIC + 011 + CC + NN
Where CIC may be any of the following, 000 to 099, 110 to 149, and 170 to 199. 100 to 109 and 150 to 169 are reserved.

Table 19

CAC formats supported from January 1, 1995 to May 31, 1996

Operator-assisted dialing to North American and International locations: 10CIC + 0 10CIC + 0 + NPA + NXX + XXXX 10CIC + 0 + NXX + XXXX 10CIC + 0 + SAC + NXX + XXXX 10CIC + 01 + CC + NN 101ECIC + 0 101ECIC + 0 + NPA + NXX + XXXX 101ECIC + 0 + NXX + XXXX 101ECIC + 0 + SAC + NXX + XXXX 101ECIC + 01 + CC + NN
Direct Distance Dial (DDD) dialing to North American and International locations: 10CIC + 1 + NPA + NXX + XXXX 10CIC + 1 + NXX + XXXX 10CIC + 011 + CC + NN 101ECIC + 1 + NPA + NXX + XXXX 101ECIC + 1 + NXX + XXXX 101ECIC + 011 + CC + NN
Where CIC may be any of the following, 000 to 099, 110 to 149, and 170 to 199 and ECIC may be 5000 to 6999.

Table 20
CAC formats supported from June 1, 1996 onward

Operator-assisted dialing to North American and International locations: $101XXXX + 0$ $101XXXX + 0 + NPA + NXX + XXXX$ $101XXXX + 0 + NXX + XXXX$ $101XXXX + 0 + SAC + NXX + XXXX$ $101XXXX + 01 + CC + NN$
Direct Distance Dial (DDD) dialing to North American and International locations: $101XXXX + 1 + NPA + NXX + XXXX$ $101XXXX + 1 + NXX + XXXX$ $101XXXX + 011 + CC + NN$

During the time when both original and expanded CAC formats are supported it should be noted that the original CICs will be supported by the expanded CAC format if “0” is dialed before the original CIC. Table 21 shows the interactions between CAC formats during the various time frames:

Table 21
CAC format interactions

Supported CAC formats	Dialing sequences	Example
Original only	10XXX + ...	10123 + 1 + NPA + NXX + XXXX
Original and Expanded	10XXX + ... 1010XXX + ...	10123 + 1 + NPA + NXX + XXXX 1010123 + 1 + NPA + NXX + XXXX
Expanded only	1010XXX + ...	1010123 + 1 + NPA + NXX + XXXX

Carrier Access Codes dialing sequences with special characters

The Meridian 1 recognizes two special characters in any dialing sequence. These characters are the * (star or asterisk) and # (number sign, pound, or octothorpe). The *, when detected in a dialing sequence, causes a pause in the outpulsing of digits, while the #, when detected in a dialing sequence, indicates end-of-dialing, i.e., no further digits are required to process the call.

Due to an interaction with Equal Access if the Meridian 1 is configured to restrict international toll calls, then direct dialed Equal Access operator calls (101XXXX + 0) can not be terminated with an #. If the Equal Access operator call is terminated with an # the call will be restricted. Table22 depicts this interaction:

Table 22
Octothorpe with Equal Access interaction

If	101XXX + 011 + CC + NN	calls are restricted.
Then	101XXX + 0 + #	calls will also be restricted.
But	101XXXX + 0	will not be restricted.

Configuring Equal Access within a Network

Equal Access toll restriction is intended for use on an outgoing route from a Meridian 1 to a Central Office. This feature is not intended for restriction of calls which terminate on a network node. Therefore, network signaling (ESN3, ESN5, or ETN) is not supported.

Within a network Equal Access toll calls should be restricted at the outgoing node (the node which is directly connected to the Central Office).

Feature interactions

AIOD and ANI

Calls made to the public exchange network when the AIOD or ANI feature is equipped will have either the internal DN recorded if the call originates at the CDP switch interfacing to the public network, or the trunk access code if the call originates at another CDP switch.

Attendant features

If a user at a local CDP switch calls the local attendant, the local user's internal DN (not the full CDP DN) is displayed.

If a user at a CDP switch calls an attendant at another CDP switch, the trunk access code and member number of the incoming trunk are displayed. The following attendant features are supported at the local CDP switch, but are not supported between CDP switches:

- automatic timed recall,
- barge-in, busy verify,
- camp-on, and
- interposition calling.

Call modification

Call modification, for example, call transfer, call forward, and conference, is allowed for CDP calls. When using these features, the user dials within the CDP format.

Call Detail Recording

The local internal DN (not the complete CDP DN) is recorded in the normal CDR manner. The maximum internal DN length remains at 4 digits; but if the DNXP package is equipped, the internal DN can have up to 7 digits. The full CDP DN is shown in the dialed number field.

Code Restriction

Code restriction is applied to calls made only from stations with a Toll Denied (TLD) class of service. Code Restriction or New Flexible Code Restriction (NFCR) can be applied on a trunk route basis to public exchange network trunk calls.

Collect Call Blocking True networking operation is not provided by this feature, however, it is possible to attach Collect Call Blocking capability to the Steering Codes (TSC, DSC) for use in a Coordinated Dialing Plan environment and outgoing routes for use in a non-CDP dialing plan, while tandeming.

Collect Call Blocking New classes of service and prompts are introduced to inhibit specific users from receiving collect DID and CO calls. When tandem calls are made, the source node determines the CCB treatment for all outgoing calls. For CDP routed calls, the CCBA prompt associated with the DSC or TSC is checked. For non-CDP routed calls (UDP, Access code, RAN, or Music Route), the CCBA prompt in the route data block is checked. The Meridian 1 will provide the CCB answer signal to the CO for all incoming DID and CO calls from routes with CCB enabled that are answered by CCB users. The CCB answer signal can only be sent in cases where answer supervision is provided by the Meridian 1. For CDP routed calls this will happen regardless of the class of service of the far end. If the call is collect the CO will disconnect it. The decision to send the CCB answer signal is made on the source node (the node closest to the CO) and is based on the CCB user hierarchy shown in [Table 23](#) below. In either case, the DID/CO route must have Collect Call Blocking enabled.

Table 23
CCB User Hierarchy

CCB User Hierarchy	
1	The setting of incoming routes CCB prompt.
2	The source (first) ACD queue's setting of the CCBA prompt.
3	The CCB option in the customer data block for NAS routing.
4	The CDP steering code's setting of the CCBA prompt.
5	The outgoing route's setting of the CCBA prompt.
6	The COS of the terminating set. If attendant answers the call, then the CCBA option in CDB.
7	The DISA data block's setting of CCBA

Common Control Switching Arrangement

A CDP number can be part of a CCSA dialing plan. Digit absorption and manipulation for CCSA calls is handled as usual by the switch. A CCSA call can terminate at a switch in a CDP group other than the switch which hosts the CCSA network. This operation is transparent to the originator of the CCSA call.

COS/TGAR treatment

For CDP calls, all Class of Service (COS) treatment remains the same as standard treatment with the exception of conditionally toll denied (CTD) and conditionally unrestricted (CUN) COS, which are treated as unrestricted (UNR). Users with an FR2 class of service can make local CDP calls, but cannot make CDP calls to distant switches. Trunk Group Access Restrictions (TGAR) are ignored for routing CDP calls.

Digit Display

- **Outgoing CDP Call** — The complete dialed CDP DN is displayed at the originating telephone.
- **Incoming CDP Call** — The trunk access code and member number of the incoming trunk route is displayed.
- **Internal CDP Call** — At the originating telephone, the complete dialed CDP DN is displayed. If the call hunts or is picked up by another telephone, the internal DN of the answering telephone is displayed. At the terminating telephone, the internal DN of the originating telephone is displayed.

Direct Inward Dialing

Because a CDP DN can be up to 7 digits long, the capability of inserting up to 6 leading digits on DID trunks is provided.

End-to-End Signaling

End-to-End signaling is allowed for CDP calls.

Hunting

Hunting across different switches in a CDP group is not supported. Standard hunting can be applied to local CDP calls.

Interchangeable Numbering Plan Area codes

Due to the fact that Interchangeable Numbering Plan Area (NPA) codes plan removes the requirement of the second digit in an NPA being zero (0) or one (1) the Toll Denied (TLD) class of service is no longer a reliable method of toll denying sets. To reliably toll deny sets the Code Restriction or New Flexible Code Restriction (NFCR) feature must be used.

Message center

The message center capability is not supported across CDP switches. However, locally it operates as normal.

NARS

The CDP feature can be implemented at a switch equipped with the NARS software feature. If such is the case, the following considerations apply:

- Steering codes for CDP calls must be distinct from the assigned NARS access codes.
- CDP numbers can be integrated with the ESN UDP; for example, a five-digit CDP number can be the same as the last five digits of a seven-digit UDP number.
- NARS/BARS route lists, digit manipulation tables, and TOD schedules can be shared by CDP calls. (CDP route lists must be numbered 0–31.)
- Users eligible for the OHQ and CBQ features, can use them when placing CDP calls.
- Free Calling Area Screening (FCAS) does not apply to CDP calls.